

exposures of the merged or acquired company may not be directly included in tier 2 capital. Rather, any excess eligible credit reserves associated with the merged or acquired company's exposures may be included in the national bank's or Federal savings association's tier 2 capital up to 0.6 percent of the credit-risk-weighted assets associated with those exposures.

**§§ 3.125–3.130 [Reserved]**

**RISK-WEIGHTED ASSETS FOR GENERAL CREDIT RISK**

**§ 3.131 Mechanics for calculating total wholesale and retail risk-weighted assets.**

(a) *Overview.* A national bank or Federal savings association must calculate its total wholesale and retail risk-weighted asset amount in four distinct phases:

- (1) Phase 1—categorization of exposures;
- (2) Phase 2—assignment of wholesale obligors and exposures to rating grades and segmentation of retail exposures;
- (3) Phase 3—assignment of risk parameters to wholesale exposures and segments of retail exposures; and
- (4) Phase 4—calculation of risk-weighted asset amounts.

(b) *Phase 1—Categorization.* The national bank or Federal savings association must determine which of its exposures are wholesale exposures, retail exposures, securitization exposures, or equity exposures. The national bank or Federal savings association must categorize each retail exposure as a residential mortgage exposure, a QRE, or another retail exposure. The national bank or Federal savings association must identify which wholesale exposures are HVCRE exposures, sovereign exposures, OTC derivative contracts, repo-style transactions, eligible margin loans, eligible purchased wholesale exposures, cleared transactions, default fund contributions, unsettled transactions to which § 3.136 applies, and eligible guarantees or eligible credit derivatives that are used as credit risk mitigants. The national bank or Federal savings association must identify any on-balance sheet asset that does not meet the definition of a wholesale, retail, equity, or securitization expo-

sure, as well as any non-material portfolio of exposures described in paragraph (e)(4) of this section.

(c) *Phase 2—Assignment of wholesale obligors and exposures to rating grades and retail exposures to segments—(1) Assignment of wholesale obligors and exposures to rating grades.*

(i) The national bank or Federal savings association must assign each obligor of a wholesale exposure to a single obligor rating grade and must assign each wholesale exposure to which it does not directly assign an LGD estimate to a loss severity rating grade.

(ii) The national bank or Federal savings association must identify which of its wholesale obligors are in default.

(2) *Segmentation of retail exposures.* (i) The national bank or Federal savings association must group the retail exposures in each retail subcategory into segments that have homogeneous risk characteristics.

(ii) The national bank or Federal savings association must identify which of its retail exposures are in default. The national bank or Federal savings association must segment defaulted retail exposures separately from non-defaulted retail exposures.

(iii) If the national bank or Federal savings association determines the EAD for eligible margin loans using the approach in § 3.132(b), the national bank or Federal savings association must identify which of its retail exposures are eligible margin loans for which the national bank or Federal savings association uses this EAD approach and must segment such eligible margin loans separately from other retail exposures.

(3) *Eligible purchased wholesale exposures.* A national bank or Federal savings association may group its eligible purchased wholesale exposures into segments that have homogeneous risk characteristics. A national bank or Federal savings association must use the wholesale exposure formula in Table 1 of this section to determine the risk-based capital requirement for each segment of eligible purchased wholesale exposures.

(d) *Phase 3—Assignment of risk parameters to wholesale exposures and segments of retail exposures.* (1) *Quantification process.* Subject to the limitations in

this paragraph (d), the national bank or Federal savings association must:

- (i) Associate a PD with each wholesale obligor rating grade;
- (ii) Associate an LGD with each wholesale loss severity rating grade or assign an LGD to each wholesale exposure;
- (iii) Assign an EAD and M to each wholesale exposure; and
- (iv) Assign a PD, LGD, and EAD to each segment of retail exposures.

(2) *Floor on PD assignment.* The PD for each wholesale obligor or retail segment may not be less than 0.03 percent, except for exposures to or directly and unconditionally guaranteed by a sovereign entity, the Bank for International Settlements, the International Monetary Fund, the European Commission, the European Central Bank, or a multilateral development bank, to which the national bank or Federal savings association assigns a rating grade associated with a PD of less than 0.03 percent.

(3) *Floor on LGD estimation.* The LGD for each segment of residential mortgage exposures may not be less than 10 percent, except for segments of residential mortgage exposures for which all or substantially all of the principal of each exposure is either:

- (i) Directly and unconditionally guaranteed by the full faith and credit of a sovereign entity; or
- (ii) Guaranteed by a contingent obligation of the U.S. government or its agencies, the enforceability of which is dependent upon some affirmative action on the part of the beneficiary of the guarantee or a third party (for example, meeting servicing requirements).

(4) *Eligible purchased wholesale exposures.* A national bank or Federal savings association must assign a PD, LGD, EAD, and M to each segment of eligible purchased wholesale exposures. If the national bank or Federal savings association can estimate ECL (but not PD or LGD) for a segment of eligible purchased wholesale exposures, the national bank or Federal savings association must assume that the LGD of the segment equals 100 percent and that the PD of the segment equals ECL divided by EAD. The estimated ECL must be calculated for the exposures

without regard to any assumption of recourse or guarantees from the seller or other parties.

(5) *Credit risk mitigation: credit derivatives, guarantees, and collateral.* (i) A national bank or Federal savings association may take into account the risk reducing effects of eligible guarantees and eligible credit derivatives in support of a wholesale exposure by applying the PD substitution or LGD adjustment treatment to the exposure as provided in §3.134 or, if applicable, applying double default treatment to the exposure as provided in §3.135. A national bank or Federal savings association may decide separately for each wholesale exposure that qualifies for the double default treatment under §3.135 whether to apply the double default treatment or to use the PD substitution or LGD adjustment treatment without recognizing double default effects.

(ii) A national bank or Federal savings association may take into account the risk reducing effects of guarantees and credit derivatives in support of retail exposures in a segment when quantifying the PD and LGD of the segment.

(iii) Except as provided in paragraph (d)(6) of this section, a national bank or Federal savings association may take into account the risk reducing effects of collateral in support of a wholesale exposure when quantifying the LGD of the exposure, and may take into account the risk reducing effects of collateral in support of retail exposures when quantifying the PD and LGD of the segment.

(6) *EAD for OTC derivative contracts, repo-style transactions, and eligible margin loans.* A national bank or Federal savings association must calculate its EAD for an OTC derivative contract as provided in §3.132 (c) and (d). A national bank or Federal savings association may take into account the risk-reducing effects of financial collateral in support of a repo-style transaction or eligible margin loan and of any collateral in support of a repo-style transaction that is included in the national bank's or Federal savings association's VaR-based measure under subpart F of this part through an adjustment to EAD as provided in §3.132(b) and (d). A

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national bank or Federal savings association that takes collateral into account through such an adjustment to EAD under § 3.132 may not reflect such collateral in LGD.

(7) *Effective maturity.* An exposure's M must be no greater than five years and no less than one year, except that an exposure's M must be no less than one day if the exposure is a trade related letter of credit, or if the exposure has an original maturity of less than one year and is not part of a national bank's or Federal savings association's ongoing financing of the obligor. An exposure is not part of a national bank's or Federal savings association's ongoing financing of the obligor if the national bank or Federal savings association:

- (i) Has a legal and practical ability not to renew or roll over the exposure in the event of credit deterioration of the obligor;
- (ii) Makes an independent credit decision at the inception of the exposure and at every renewal or roll over; and
- (iii) Has no substantial commercial incentive to continue its credit relationship with the obligor in the event of credit deterioration of the obligor.

(8) *EAD for exposures to certain central counterparties.* A national bank or Federal savings association may attribute an EAD of zero to exposures that arise from the settlement of cash transactions (such as equities, fixed income, spot foreign exchange, and spot com-

modities) with a central counterparty where there is no assumption of ongoing counterparty credit risk by the central counterparty after settlement of the trade and associated default fund contributions.

(e) *Phase 4—Calculation of risk-weighted assets—(1) Non-defaulted exposures.* (i) A national bank or Federal savings association must calculate the dollar risk-based capital requirement for each of its wholesale exposures to a non-defaulted obligor (except for eligible guarantees and eligible credit derivatives that hedge another wholesale exposure, IMM exposures, cleared transactions, default fund contributions, unsettled transactions, and exposures to which the national bank or Federal savings association applies the double default treatment in § 3.135) and segments of non-defaulted retail exposures by inserting the assigned risk parameters for the wholesale obligor and exposure or retail segment into the appropriate risk-based capital formula specified in Table 1 and multiplying the output of the formula (K) by the EAD of the exposure or segment. Alternatively, a national bank or Federal savings association may apply a 300 percent risk weight to the EAD of an eligible margin loan if the national bank or Federal savings association is not able to meet the OCC's requirements for estimation of PD and LGD for the margin loan.

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TABLE 1 TO § 3.131 – IRB RISK-BASED CAPITAL FORMULAS FOR WHOLESALE EXPOSURES  
TO NON-DEFAULTED OBLIGORS AND SEGMENTS OF NON-DEFAULTED RETAIL EXPOSURES<sup>1</sup>

Retail	<b>Capital Requirement (K)</b>	$K = \left[ LGD \times N \left( \frac{N^{-1}(PD) + \sqrt{R} \times N^{-1}(0.999)}{\sqrt{1-R}} \right) - (LGD \times PD) \right]$
	<b>Non-Defaulted Exposures</b>	
	<b>Correlation Factor (R)</b>	For residential mortgage exposures: $R = 0.15$ For qualifying revolving exposures: $R = 0.04$ For other retail exposures: $R = 0.03 + 0.13 \times e^{-35 \times PD}$
	<b>Capital Requirement (K)</b>	$K = \left[ LGD \times N \left( \frac{N^{-1}(PD) + \sqrt{R} \times N^{-1}(0.999)}{\sqrt{1-R}} \right) - (LGD \times PD) \right] \times \left( \frac{1 + (M - 2.5) \times b}{1 - 1.5 \times b} \right)$
	<b>Non-Defaulted Exposures</b>	
Wholesale	<b>Correlation Factor (R)</b>	For HVCRE exposures: $R = 0.12 + 0.18 \times e^{-50 \times PD}$ For wholesale exposures to unregulated financial institutions:

$$R = 1.25 \times (0.12 + 0.12 \times e^{-50 \times PD})$$

For wholesale exposures to regulated financial institutions with total assets greater than or equal to \$100 billion:

$$R = 1.25 \times (0.12 + 0.12 \times e^{-50 \times PD})$$

For wholesale exposures other than HVCRE exposures, unregulated financial institutions, and regulated financial institutions with total assets greater than or equal to \$100 billion:

$$R = 0.12 + 0.12 \times e^{-50 \times PD}$$

**Maturity**

$$b = (0.11852 - 0.05478 \times \ln(PD))^2$$

**Adjustment**

**(b)**

<sup>1</sup>N(.) means the cumulative distribution function for a standard normal random variable. N<sup>-1</sup>(.) means the inverse cumulative distribution function for a standard normal random variable. The symbol e refers to the base of the natural logarithms, and the function ln(.) refers to the natural logarithm of the expression within parentheses. The formulas apply when PD is greater than zero. If PD equals zero, the capital requirement K is set equal to zero.

(ii) The sum of all the dollar risk-based capital requirements for each wholesale exposure to a non-defaulted obligor and segment of non-defaulted retail exposures calculated in paragraph (e)(1)(i) of this section and in § 3.135(e) equals the total dollar risk-based capital requirement for those exposures and segments.

(iii) The aggregate risk-weighted asset amount for wholesale exposures to non-defaulted obligors and segments of non-defaulted retail exposures equals the total dollar risk-based capital requirement in paragraph (e)(1)(ii) of this section multiplied by 12.5.

(2) *Wholesale exposures to defaulted obligors and segments of defaulted retail exposures*—(i) *Not covered by an eligible*

*U.S. government guarantee*: The dollar risk-based capital requirement for each wholesale exposure not covered by an eligible guarantee from the U.S. government to a defaulted obligor and each segment of defaulted retail exposures not covered by an eligible guarantee from the U.S. government equals 0.08 multiplied by the EAD of the exposure or segment.

(ii) *Covered by an eligible U.S. government guarantee*: The dollar risk-based capital requirement for each wholesale exposure to a defaulted obligor covered by an eligible guarantee from the U.S. government and each segment of defaulted retail exposures covered by an eligible guarantee from the U.S. government equals the sum of:

(A) The sum of the EAD of the portion of each wholesale exposure to a defaulted obligor covered by an eligible guarantee from the U.S. government plus the EAD of the portion of each segment of defaulted retail exposures that is covered by an eligible guarantee from the U.S. government and the resulting sum is multiplied by 0.016, and

(B) The sum of the EAD of the portion of each wholesale exposure to a defaulted obligor not covered by an eligible guarantee from the U.S. government plus the EAD of the portion of each segment of defaulted retail exposures that is not covered by an eligible guarantee from the U.S. government and the resulting sum is multiplied by 0.08.

(iii) The sum of all the dollar risk-based capital requirements for each wholesale exposure to a defaulted obligor and each segment of defaulted retail exposures calculated in paragraph (e)(2)(i) of this section plus the dollar risk-based capital requirements each wholesale exposure to a defaulted obligor and for each segment of defaulted retail exposures calculated in paragraph (e)(2)(ii) of this section equals the total dollar risk-based capital requirement for those exposures and segments.

(iv) The aggregate risk-weighted asset amount for wholesale exposures to defaulted obligors and segments of defaulted retail exposures equals the total dollar risk-based capital requirement calculated in paragraph (e)(2)(iii) of this section multiplied by 12.5.

(3) *Assets not included in a defined exposure category.* (i) A national bank or Federal savings association may assign a risk-weighted asset amount of zero to cash owned and held in all offices of the national bank or Federal savings association or in transit and for gold bullion held in the national bank's or Federal savings association's own vaults, or held in another national bank's or Federal savings association's vaults on an allocated basis, to the extent the gold bullion assets are offset by gold bullion liabilities.

(ii) A national bank or Federal savings association must assign a risk-weighted asset amount equal to 20 percent of the carrying value of cash items in the process of collection.

(iii) A national bank or Federal savings association must assign a risk-weighted asset amount equal to 50 percent of the carrying value to a pre-sold construction loan unless the purchase contract is cancelled, in which case a national bank or Federal savings association must assign a risk-weighted asset amount equal to a 100 percent of the carrying value of the pre-sold construction loan.

(iv) The risk-weighted asset amount for the residual value of a retail lease exposure equals such residual value.

(v) The risk-weighted asset amount for DTAs arising from temporary differences that the national bank or Federal savings association could realize through net operating loss carrybacks equals the carrying value, netted in accordance with §3.22.

(vi) The risk-weighted asset amount for MSAs, DTAs arising from temporary timing differences that the national bank or Federal savings association could not realize through net operating loss carrybacks, and significant investments in the capital of unconsolidated financial institutions in the form of common stock that are not deducted pursuant to §3.22(a)(7) equals the amount not subject to deduction multiplied by 250 percent.

(vii) The risk-weighted asset amount for any other on-balance-sheet asset that does not meet the definition of a wholesale, retail, securitization, IMM, or equity exposure, cleared transaction, or default fund contribution and is not subject to deduction under §3.22(a), (c), or (d) equals the carrying value of the asset.

(4) *Non-material portfolios of exposures.* The risk-weighted asset amount of a portfolio of exposures for which the national bank or Federal savings association has demonstrated to the OCC's satisfaction that the portfolio (when combined with all other portfolios of exposures that the national bank or Federal savings association seeks to treat under this paragraph (e)) is not material to the national bank or Federal savings association is the sum of the carrying values of on-balance sheet exposures plus the notional amounts of off-balance sheet exposures in the portfolio. For purposes of this paragraph (e)(4), the notional amount of an OTC

derivative contract that is not a credit derivative is the EAD of the derivative as calculated in § 3.132.

**§ 3.132 Counterparty credit risk of repo-style transactions, eligible margin loans, and OTC derivative contracts.**

(a) *Methodologies for collateral recognition.* (1) Instead of an LGD estimation methodology, a national bank or Federal savings association may use the following methodologies to recognize the benefits of financial collateral in mitigating the counterparty credit risk of repo-style transactions, eligible margin loans, collateralized OTC derivative contracts and single product netting sets of such transactions, and to recognize the benefits of any collateral in mitigating the counterparty credit risk of repo-style transactions that are included in a national bank's or Federal savings association's VaR-based measure under subpart F of this part:

(i) The collateral haircut approach set forth in paragraph (b)(2) of this section;

(ii) The internal models methodology set forth in paragraph (d) of this section; and

(iii) For single product netting sets of repo-style transactions and eligible margin loans, the simple VaR methodology set forth in paragraph (b)(3) of this section.

(2) A national bank or Federal savings association may use any combination of the three methodologies for collateral recognition; however, it must use the same methodology for transactions in the same category.

(3) A national bank or Federal savings association must use the methodology in paragraph (c) of this section, or with prior written approval of the OCC, the internal model methodology in paragraph (d) of this section, to calculate EAD for an OTC derivative contract or a set of OTC derivative contracts subject to a qualifying master netting agreement. To estimate EAD for qualifying cross-product master netting agreements, a national bank or Federal savings association may only use the internal models methodology in paragraph (d) of this section.

(4) A national bank or Federal savings association must also use the

methodology in paragraph (e) of this section to calculate the risk-weighted asset amounts for CVA for OTC derivatives.

(b) *EAD for eligible margin loans and repo-style transactions*—(1) *General.* A national bank or Federal savings association may recognize the credit risk mitigation benefits of financial collateral that secures an eligible margin loan, repo-style transaction, or single-product netting set of such transactions by factoring the collateral into its LGD estimates for the exposure. Alternatively, a national bank or Federal savings association may estimate an unsecured LGD for the exposure, as well as for any repo-style transaction that is included in the national bank's or Federal savings association's VaR-based measure under subpart F of this part, and determine the EAD of the exposure using:

(i) The collateral haircut approach described in paragraph (b)(2) of this section;

(ii) For netting sets only, the simple VaR methodology described in paragraph (b)(3) of this section; or

(iii) The internal models methodology described in paragraph (d) of this section.

(2) *Collateral haircut approach*—(i) *EAD equation.* A national bank or Federal savings association may determine EAD for an eligible margin loan, repo-style transaction, or netting set by setting EAD equal to max

$$\{0, [(\Sigma E - \Sigma C) + \Sigma(E_s \times H_s) + \Sigma(E_{fx} \times H_{fx})]\},$$

where:

(A)  $\Sigma E$  equals the value of the exposure (the sum of the current fair values of all instruments, gold, and cash the national bank or Federal savings association has lent, sold subject to repurchase, or posted as collateral to the counterparty under the transaction (or netting set));

(B)  $\Sigma C$  equals the value of the collateral (the sum of the current fair values of all instruments, gold, and cash the national bank or Federal savings association has borrowed, purchased subject to resale, or taken as collateral from the counterparty under the transaction (or netting set));